with elemental fluorine, and to the fluorination process. Dixon et al does not explicitly teach to coat a yarn composed of fibers or filaments with fluoropolymer. All Examples I – VI of Dixon were conducted on fabrics and not on yarns.

Jahn specifically teaches that the fluoropolymer coating compositions are free of conventional adhesion promoters such as the one or two component adhesion promoters used in the production of PVC coatings (column 2, lines 28-37), but in place of conventional adhesion promoters, the fluoropolymer coating formulation contains an organic compound having a plurality of isocyanate groups, as described in col. 3, lines 19-22 of Jahn. Such organic compounds are incorporated as adhesion promoters into the fluoropolymer formulations according to the invention of Jahn. The organic compounds are new adhesion promoters compared with the conventional adhesion promoters used in PVC coatings, but, nevertheless, they are adhesion promoters. In contrast, claim 16 of the present invention states that the fluoropolymer coating is free of adhesion promoting constituents. This lack of adhesion promoting constituents in the fluoropolymer coating of the present invention as claimed in claim 16 is a distinguishing limitation against the references of Dixon et al. and Jahn.

In the Office Action of March 17, 2006 (final rejection), the examiner agrees that the organic compound containing isocyanate groups of Jahn does not meet the requirement of claim 16 that the fluoropolymer is free of adhesion promoting constituents. *See,* final rejection, page 2. However, the examiner for the first time points to column 5, lines 29-37 of Jahn for its disclosure of formulating the fluoropolymer coating composition free of isocyanate groups. *Id.*

The examiner's position has been carefully considered, including the new reliance upon column 5, lines 29-37 of Jahn. For the following reasons, it is believed that the examiner's rejection under 35 U.S.C 103(a) is in error.

First, the examiner's obviousness rejection is based upon impermissible hindsight. "It is well-established that before a conclusion of obviousness may be made based on a combination of references, there must have been a reason, suggestion, or motivation to lead an inventor to

combine those references." *Pro-Mold and Tool Co. v. Great Lakes Plastics Inc.*, 75 F.3d 1568, 1573, 37 USPQ2d 1626, 1629-30 (Fed. Cir. 1996). As stated in *In re Kotzab*,

> A critical step in analyzing the patentability of claims pursuant to section 103(a) is casting the mind back to the time of invention, to consider the thinking of one of ordinary skill in the art, guided only by the prior art references and the then-accepted wisdom in the field. See [In re] *Dembiczak*, 175 F.3d 994 at 999, 50 U.S.P.Q.2D [1614] at 1617 [Fed. Cir. 1999]. Close adherence to this methodology is especially important in cases where the very ease with which the invention can be understood may prompt one "to fall victim to the insidious effect of a hindsight syndrome wherein that which only the invention taught is used against its teacher." Id. (quoting *W.L. Gore & Assocs., Inc. v. Garlock, Inc.*, 721 F.2d 1540, 1553, 220 U.S.P.Q. 303, 313 (Fed. Cir. 1983)).

Here, it is believed the Examiner has impermissibly used applicant's disclosure of the claimed invention as a road map in order to combine Dixon et al. and Jahn in an attempt to arrive at the subject matter of claim 16. The two references themselves do not individually or together suggest the yarn set forth in claim 16.

As previously discussed, Dixon et al. describe a fluorinated yarn but do not teach that the fluorinated yarn be coated with a fluoropolymer. Jahn describes that yarns may be coated with a fluoropolymer but does not teach that the yarn be surface fluorinated prior to coating. Since Dixon et al. do not teach that the fluorinated yarn of that invention be coated with a fluoropolymer, the question becomes where is there a reason, suggestion or motivation to coat the fluorinated yarn of Dixon et al. as required by claim 16? Jahn does not suggest such a step as the yarns used in the Jahn invention are *not* surface fluorinated. Since the references relied upon as evidence in the obviousness rejection do not suggest their combination, it appears that the only reason to combine the references in the manner proposed by the examiner is applicant's disclosure of the present invention. Thus, the obviousness rejection should be withdrawn as it is based upon impermissible hindsight.

Further evidence that the examiner's rejection is based upon impermissible hindsight is found from the fibers to be treated in each of Dixon et al. and Jahn. The fibers to be fluorinated in Dixon et al. are either polyolefin or polyacrylonitrile. See e.g., column 1, lines 35-47. In contrast, Jahn indicates that his invention is to be used on synthetic fibers preferably polyester, polyamide or aramid fibers. See column 5, lines 60-66. See also column 6, lines 11-16 ("Owing

to the high mechanical strength properties of polyester, polyamide or aramid fibers, the materials which have been fluoropolymer-coated according to the invention also have excellent mechanical strength values which very much widen their range of possible industrial uses.").

Given that Dixon et al is limited to surface fluorinated polyolefin or polyacrylonitrile fibers and Jahn's preference for polyester, polyamide or aramid fibers, a person of ordinary skill in the art would not have found it obvious to combine the two references in the manner proposed by the examiner.

Second, the examiner's new reliance upon column 5, lines 29-37 of Jahn needs to be put in the proper perspective. This portion of Jahn reads as follows:

> **It is also possible to prepare fluoropolymer coatings on organic synthetic fibers by using the fluoropolymer formulation according to the invention only to prepare the basecoat and to use for the basecoat or basecoats a normal aqueous fluoropolymer dispersion or paste which is free of isocyanato-containing organic compounds but which, of course, may contain further additives, for example dispersants, wetting agents, pigments, flame-proofing agents or other filling and auxiliary substances.**

However, the portion of this passage that states that a "normal" aqueous fluoropolymer dispersion or paste free of isocyanto-containing organic compounds can be used for the "basecoat or basecoats" is inconsistent with the rest of the disclosure of Jahn when the reference describes its invention. For example, Jahn states at column 2, lines 30-36 that:

> **It has now been found, surprisingly, that it is possible to produce very strongly adherent fluoropolymer coatings on synthetic fibers by applying at least as the first impregnation or as the first coat (basecoat) a fluoropolymer formulation which, in place of conventional adhesion promotors, merely contains an organic compound having a plurality of isocyanate groups.**

The working examples of Jahn that are illustrative of the Jahn invention always use a fluoropolymer polymer formulation that contains an organic compound having a plurality of isocyanate groups as the *basecoat*. A so-called normal fluoropolymer is always used as a topcoat, not a basecoat, in the inventive examples of Jahn. It is only in the *comparative example* portion of Example 3 does Jahn describe the use of a "normal" fluoropolymer coating as both a basecoat and a topcoat as follows:

> If this example is repeated exactly as described above with a fluoropolymer paste which contains no dicyanato compound but which otherwise has the composition of the paste prepared in Example 1, an adhesive strength of 9.1 daN/5 cm is found on the front of the coated fabric and an adhesive strength of 6.9 daN/5 cm on the back.

It should be noted that the adhesive strength values set forth in the comparative example portion of Example 3 are *less* than the adhesive strength values set forth in the inventive example portion of Example 3.

This inconsistency is believed to have originated when the Jahn German priority document, DE 3803226, filed February 4, 1988, was translated prior to filing the U.S. application. In support of this, applicant introduces into the record the Declaration of Dr. Jürgen Plate.[1] Dr. Plate compared the Jahn disclosure at column 5, lines 29-37 with the corresponding disclosure in DE 3803326 and found that the passage in the Jahn U.S. patent disclosure is based upon a mistranslation of the German priority document. Specifically, Dr. Plate states that the corresponding portion of the German priority document should be translated as follows:

> For the manufacture of fluoropolymer coatings on organic synthetic fibres it is also possible to use the fluoropolymer composition according to the invention exclusively for the manufacture of the base coating and to prepare the top-coating or top-coatings with a standard aqueous fluoropolymer dispersion or fluoropolymer paste which is free from isocyanate-group-containing organic compounds, but which, of course, may contain further additives, such as dispersion agents, wetting agents, pigments, flame retardants or other filling and auxiliary substances.

As seen from Dr. Plate's declaration, this portion of the underlying German priority document is consistent with the Jahn disclosure of his invention that the base coating contains an organic compound containing isocyanate groups.

Third, while the examiner has not relied upon the comparative portion of Example 3 of Jahn, it is noted that this portion of Jahn does not render the yarn of claim 16 obvious. The base yarn used in the comparative portion of Example 3 was not surface fluorinated as required by claim 16. Thus, when the comparative portion of Example 3 of Jahn is viewed in light of the teachings of Dixon et al., it is found once again that there is no reason, suggestion or motivation to combine these disclosures in order to arrive at the subject matter of claim 16. If anything,

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[1] The submission of the Plate declaration is timely since the examiner relied up column 5, lines 29-37 of Jahn for the first time in the final rejection. Thus, this is the first time applicant has had an opportunity to respond to this new portion of the examiner's position.

when Jahn is read as a whole, as it must, Jahn teaches away from using a "normal" fluorocarbon polymer as a basecoat since the results reported in Example 3 of Jahn clearly establish that superior adhesive strength results are obtained when a fluoropolymer containing an organic compound having isocyanate groups is used as the base coat. Specifically, Jahn states that fabric formed in the inventive portion of Example 3 using a fluoropolymer containing an organic compound having isocyanate groups had an adhesive strength of 20.7 daN/5 cm while the fabric formed in the comparative portion of Example 3 using a "normal" fluoropolymer had an adhesive strength of 9.1 daN/5 cm on the front and 6.9 daN/5 cm on the back. Thus, even if Jahn is read without an understanding of the mistranslation of column 5, lines 29-37, the results set forth in Example 3 where a "normal" fluoropolymer was used as a comparative provide evidence that a person of ordinary skill in the art would not have been lead to use a "normal" fluorocarbon polymer to coat surface fluorinated yarns as required by claim 16.

For the reasons set forth above, it is believed that the disclosures of Dixon et al. and Jahn do not establish a *prima facie* case of obviousness. However, if the examiner continues to believe that these two references establish a *prima facie* case of obviousness, the examiner needs to consider the objective evidence of nonobviousness that is present in this case in the form of the specification examples. Where as here, rebuttal evidence is provided, the *prima facie* case dissolves, and the decision is made on the entirety of the evidence. *In re Oetiker*, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992).

The specification examples provide evidence that surface fluorination of yarn prior to coating the yarn with a fluoropolymer free of adhesion-promoting constituents unexpectedly improves the surface adhesion of the fluoropolymer to the yarn. See, e.g., Tables 1-3 and Figures 1 and 2 of the specification. As the examiner will see when the data set forth in the tables and figures are analyzed, surface fluorination of yarns prior to coating with a fluoropolymer free of adhesion-promoting constituents increases the adhesive bonding of the fluoropolymer to the yarn compared with coating a non-surface fluorinated yarn with a fluoropolymer free of adhesion-promoting constituents. Neither Dixon et al. nor Jahn teach or suggest the results set forth in Tables 1-3 and Figures 1 and 2 of the specification.

In comparing applicant's invention with the disclosures of Dixon et al. and Jahn, it can be seen that the present surface fluorination step is similar to the use of the fluoropolymer containing an organic compound having isocyanate groups in Jahn. Both the surface fluorination step of the present invention and the use of the fluoropolymer containing an organic compound having isocyanate groups in Jahn improve the adhesion of a subsequently applied fluoropolymer. In essence, what is missing from the examiner's evidence and analysis is a teaching that at the time of the present invention, a person of ordinary skill in the art understood that surface fluorination of yarns would improve the adhesion of a subsequently applied fluoropolymer that is free of adhesion-promoting constituents.

To summarize, for the reasons set forth above the combined disclosures of Dixon et al. and Jahn do not provide sufficient evidence to establish a *prima facie* of obviousness. If it is concluded that these two references do provide such evidence, the evidence of non-obviousness set forth in the specification provides a rebuttal of the *prima facie* case.

In light of the foregoing remarks, applicant respectfully requests the Examiner to allow the claims.

If the Examiner has any comments or wishes to contact the undersigned, please do not hesitate to do so.

Respectfully submitted,

Gregory N. Clements
Registration No. 30,713
DOUGHERTY | CLEMENTS
1901 Roxborough Road, Suite 300
Charlotte, North Carolina 28211
Telephone: (704) 366-6642
Facsimile: (704) 366-9744

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